

IN THE SPECIFICATION:

Please amend paragraphs [001], [003], [005], [006], [011], [014] [028], [030], [035], [040], [041], [042], [043], [053], [054], [055], [056], [057] [058], [059], [063], [158], [167], and [170] as shown below, in which deleted terms are shown with strikethrough and added terms are shown with underscoring.

Paragraph [001]

1. Field of the Invention

The present invention relates to a door for a vehicle, the rigidity of which is high.

Paragraph [003]

2. Discussion of Background Art

As a conventional door for a vehicle, the rigidity of which is high and the weight of which is light, a door frame structure is well known (For example, refer to Patent Document 1.). This door frame structure includes: a front frame member (a door inner front member) for forming a front edge of the door body; a rear frame member (a door inner rear member) for forming a rear edge of the door body; an upper frame (a waist reinforcing member) for connecting the front frame member with the rear frame member; and a lower frame (a sill extruded member).

Paragraph [005]

[Patent Document 1]

JP-A-2001-341529 (Pages 4 and 6, Figs. 1 and 17)

Further, concerning the conventional door for a vehicle, the rigidity of which is high, a reinforcing structure of the door for a vehicle is well known, in which an inner frame (an inner reinforcement) extending in the longitudinal direction is arranged in an upper portion of the door body so as to ensure the mechanical strength of an upper portion of the door body. Concerning this reinforcing structure, for example, refer to Patent Document 2.

Paragraph [006]

This reinforcing structure of the door for a vehicle includes: an outer reinforcement arranged in an upper end portion of the outer door panel; and an inner reinforcement arranged in an upper portion of the inner door panel. Each of the outer and the inner reinforcement is a

cylindrical member having a closed cross section. These outer and the inner reinforcements are made of an extruded material of light metal such as aluminum.

Paragraph [011]

In the case of the inner reinforcement and inner waist reinforcement arranged inside the vehicle described in Patent Document 2, the following problems may be encountered. In order to ensure the rigidity, the cross section is formed into a closed section having a hollow portion. Therefore, in the case where a passenger bumps against the inner reinforcement and inner waist reinforcement when the vehicle comes into a collision with another one, since the inner reinforcement and inner waist reinforcement have a cylindrical hollow portion, it is difficult for the inner reinforcement and inner waist reinforcement to be deformed.

Paragraph [014]

In order to solve the above problems, a door for a vehicle described in aspect 1 includes: a lower frame arranged in a lower portion of the door body, extending in the longitudinal direction of the vehicle; an outside plate forming a surface of the vehicle body, arranged outside of the lower frame; and an outer panel having an inside plate folded back at a lower end portion of the outside plate, the inside plate extending to the inside of the vehicle of the lower frame, wherein a closed cross section is formed in a lower portion of the door body when the lower frame and the outer panel are joined to each other.

Paragraph [028]

It is another object of the present invention to provide a door for a vehicle provided with both the high rigidity and the buffer action property.

Paragraph [030]

In this connection, "inside the vehicle" described in aspects is defined as a case in which a member is arranged inside or inwardly of the passenger's room with respect to a portion in which the windowpane is arranged.

Paragraph [035]

A door for a vehicle described in aspect 9 is the door for a vehicle according to aspect 7 or 8, wherein the inner frame includes a pair of flanges extending from the upper and the lower portion of the inner frame toward the inside of the opening, and the width of each flange in the vertical direction is set at 1/4 to 1/2 of the width in the vertical direction of the base portion

which forms the corresponding upper and lower portion, the cross section of which is formed into a C-shape.

Paragraph [040]

According to the invention described in aspect 11, in the case where the vehicle comes into a collision with another one and the passenger bumps against the inner frame from the inside of the vehicle, since the side of the inner frame inside the vehicle and the upper and the lower leg portions extending from the upper and the lower end portion of the side to the outside of the vehicle are formed being curved, it is possible to avoid the occurrence of stress concentration in the connecting portion, and the collision load can be positively received. Since a hollow swelling portion is formed, the passenger can be softly received.

Paragraph [041]

Besides, a door for a vehicle described in a first general aspect is the door for a vehicle which includes: a door beam; an inner frame having a section of C shape; and a lower frame, extending in a longitudinal direction of the vehicle and forming a closed section with an outer panel.

Paragraph [042]

Further, a door for a vehicle described in a second general aspect is the door for a vehicle which includes: a door beam; an inner frame having a section of C shape; and a lower frame, extending in a longitudinal direction of the vehicle and forming a closed section with an outer panel, wherein a front frame member arranged on the front side of the vehicle and a rear frame member arranged on the rear side of the vehicle are connected by the inner frame and the lower frame.

Paragraph [043]

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a view showing a door for a vehicle of ~~[[the]]~~ an embodiment of the present invention, that is, Fig. 1 is a side view of the door, one portion of which is shown by a cross section.

Paragraph [053]

Fig. 11 is a view showing a door for a vehicle of ~~[[the]]~~ another embodiment of the present invention, that is, Fig. 11 is a side view of the door, one portion of which is shown by a cross section.

Paragraph [054]

Fig. 12 is an exploded perspective view showing a door for a vehicle of the embodiment of ~~the present invention~~ Fig. 11.

Paragraph [055]

Fig. 13 is a view showing a door for a vehicle of the embodiment of ~~the present invention~~ Fig. 11, that is, Fig. 13 is an enlarged perspective view of the door body, wherein the view is taken from the outside of the vehicle.

Paragraph [056]

Fig. 14 is a view showing a door for a vehicle of the embodiment of ~~the present invention~~ Fig. 11, that is, Fig. 14 is an enlarged perspective view of the door body, wherein the view is taken from the inside of the vehicle.

Paragraph [057]

Fig. 15 is a view showing a door for a vehicle of the embodiment of ~~the present invention~~ Fig. 11, that is, Fig. 15 is an enlarged exploded perspective view of the door body.

Paragraph [058]

Fig. 16 is a view showing a door for a vehicle of the embodiment of ~~the present invention~~ Fig. 11, that is, Fig. 16 is an enlarged perspective view showing a primary portion in a state of connecting the upper frame with the front frame member in the case where the upper outer frame is disengaged.

Paragraph [059]

Fig. 17 is a view showing a door for a vehicle of the embodiment of ~~the present invention~~ Fig. 11, that is, Fig. 17 is an enlarged perspective view showing a primary portion in a state of connecting the upper inner frame with the front frame member, wherein the view is taken from the inside of the vehicle.

Paragraph [063]

DETAILED DESCRIPTION OF THE PREFERRED PRESENT EMBODIMENTS

Referring to the accompanying drawings, a door for a vehicle of the embodiments of the present invention will be explained below.

Paragraph [158]

According to the invention described in aspect 2, a door for a vehicle includes: a door body including a front frame member, including a rear frame member arranged on the rear side of the vehicle and including a lower frame for connecting the front frame member with the rear frame member; and an outer panel including an outside plate for forming a surface of the vehicle of the lower frame outside the vehicle and an inside plate folded back at a lower end portion of the outside plate, the inside plate extending to the inside of the vehicle ~~[[of]]~~ relative to the lower frame. Therefore, the door body can have a frame structure. For the above reasons, even when the door body includes members made of aluminum or magnesium, the press-forming property of which is low, the door can be easily made by connecting these members. Due to the foregoing, the door can be made of light metal. Therefore, the weight of the entire vehicle can be reduced and the fuel consumption can be enhanced.

Paragraph [167]

In the case where a passenger bumps against the inner frame inside the vehicle, the inner frame, the cross section of which is formed into a substantial C-shape, is arranged in the door body in such a manner that the opening portion of the inner frame is directed outside the vehicle. Therefore, when an impact force, the intensity of which is not less than a predetermined value, is given to upper and lower edges of the opening portion or a portion inside the vehicle with respect to the opening portion of the inner frame, the inner frame is bent by contact with the passenger and the passenger ~~can be received by~~ is prevented from receiving a large ~~[[face]]~~ force, that is, the inner frame is provided with a buffer action property. Therefore, it is possible to protect the passenger from the impact force.

Paragraph [170]

According to the door for a vehicle of the present invention described in aspect 11, in the case where the vehicle comes into a collision with another one and the passenger bumps against the inner frame from the inside of the vehicle, since the side of the inner frame inside the vehicle and the upper and the lower leg portions extending from the upper and the lower end portions of the side to the outside of the vehicle are formed being curved, it is possible to avoid the occurrence of stress concentration upon the connecting portion, and the collision load can be positively received. Since a hollow swelling portion is formed, the passenger can be softly received and protected from an impact force.